UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
901 NORTH 5th STREET
KANSAS CITY, KANSAS 66101

04 MAR 22 AM 8:39
ENVIRONMENTAL PROTECTION AGENCY-REGION VII
REGIONAL HEARING CLERK

IN THE MATTER OF:

RIVERFRONT SUPERFUND SITE
OPERABLE UNIT NO. 2
NEW HAVEN, MISSOURI

KELLWOOD COMPANY,

RESPONDENT.

Proceeding under Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. §§ 9604, 9622(a) and 9622(d)(3).

Docket No.
CERCLA-07-2004-0078

04 MAR 22 AM 8:39
ENVIRONMENTAL PROTECTION AGENCY-REGION VII
REGIONAL HEARING CLERK

ADMINISTRATIVE ORDER ON CONSENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

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I. INTRODUCTION

1. This Administrative Order on Consent ("Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and Kellwood Company, a Delaware corporation ("Kellwood" or "Respondent"). This Order concerns: (a) the partial reimbursement by Respondent of EPA's Past Response Costs (as defined below); and (b) Respondent's preparation of, performance of, and reimbursement of all costs incurred by EPA in connection with a remedial investigation and feasibility study ("RI/FS") for Operable Unit No. 2 at the Riverfront National Priorities List ("NPL") site located in New Haven, Franklin County, Missouri.

II. JURISDICTION

2. This Order is issued pursuant to the authority vested in the President of the United States by Sections 104, 122(a), and 122(d)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. §§ 9604, 9622(a), 9622(d)(3), as amended ("CERCLA"). This authority was delegated to the Administrator of EPA by Executive Order 12580, 52 Fed. Reg. 2926 (January 23, 1987), and was further delegated to the Regional Administrators of EPA on September 13, 1987, by EPA Delegation No. 14-14-C. This authority has been redelegated to the Director of Region VII's Superfund Division by EPA Region VII Delegation No. R7-14-14C, dated January 1, 1995.

3. Respondent agrees to undertake all actions required by this Order. In any action by EPA or the United States to enforce the terms of this Order, Respondent consents to and agrees not to contest the authority or jurisdiction of EPA to issue or enforce this Order, and agrees not to contest the validity of this Order or its terms. Respondent retains the right to contest the findings and conclusions contained in this Order with regard to any claim or proceeding not involving the enforcement of the terms of this Order.

III. PARTIES BOUND

4. This Order shall apply to and be binding upon EPA and shall be binding upon Respondent and its agents and successors. Each signatory to this Order certifies that he/she is authorized to execute and legally bind the party that he/she represents to this Order. No change in Respondent's ownership or corporate status shall alter Respondent's responsibilities under this Order.

5. Respondent shall provide a copy of this Order to any subsequent owners or successors before ownership rights or stock or assets in a corporate acquisition are transferred. Respondent shall provide a copy of this Order to all contractors, subcontractors, laboratories, and consultants which are retained to conduct any work performed under this Order within 14 days after the effective date of this Order or the date of retaining their services, whichever is later. Respondent shall condition any such contracts upon satisfactory compliance with this Order. Notwithstanding the terms of any contract, Respondent is responsible for compliance with this Order and for ensuring that its subsidiaries, employees, contractors, consultants, subcontractors, and agents comply with this Order.

IV. STATEMENT OF PURPOSE

6. In entering into this Order, the objectives of EPA and Respondent are: (a) to determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants caused by Kellwood's activities at the Site (as defined below), by conducting a remedial investigation; (b) to determine and evaluate alternatives for remedial action (if any) to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a feasibility study; and (c) to recover certain response and oversight costs incurred by EPA with respect to this Operable Unit and Order.

7. The activities conducted under this Order are subject to approval by EPA and shall provide all appropriate necessary information for the RI/FS, and for a record of decision that is consistent with CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300. The activities conducted under this Order shall be conducted in compliance with all applicable EPA guidances, policies, and procedures.

V. DEFINITIONS

8. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Order or in the Statement of Work which is attached hereto and incorporated hereunder, the following definitions shall apply:

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq.*

"Day" shall mean a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

"Effective Date" shall be the effective date of this Order as provided in Section XXVII.

"EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

"Future Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs beginning on the Effective Date of this Order in reviewing or developing plans, reports, and other items pursuant to this Order, verifying the Work, or otherwise implementing, overseeing, or enforcing this Order, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs.

"Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

"MDNR" shall mean the Missouri Department of Natural Resources and any successor departments or agencies of the State.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"Order" shall mean this Administrative Order on Consent.

"Paragraph" shall mean a portion of this Order identified by an Arabic numeral.

"Parties" shall mean EPA and Respondent.

"Past Response Costs" shall mean all unreimbursed costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site through the day preceding the effective date of this Order, plus Interest on all such costs through such date.

"RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. § 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

"Respondent" shall mean Kellwood Company, a Delaware corporation.

"Section" shall mean a portion of this Order identified by a Roman numeral.

"Site" shall mean the contamination constituting Operable Unit No. 2 of the Riverfront National Priorities List Site resulting from Respondent's historic operations on and in the area of Industrial Drive, south of Highway 100, in New Haven, Franklin County, Missouri, and all areas where such contamination has come to be located. The Site is generally depicted on Attachment 1.

"State" shall mean the State of Missouri.

"Work" shall mean all activities Respondent is required to perform pursuant to this Order.

VI. FINDINGS OF FACT

9. From approximately 1973 until September 1985, Respondent operated a tube mill at 202 Industrial Drive in New Haven, Missouri. During this period tetrachloroethylene ("PCE") was used as a cleaning solvent in the tube mill's operations and in swaging operations conducted at the facility.

10. In April 1994, Kellwood Company and the Missouri Department of Natural Resources ("MDNR") entered into an agreement ("Agreement") whereby Kellwood agreed to implement "a remedial cleanup and groundwater monitoring plan" to address PCE contamination in soils adjacent to Kellwood's former facility.

11. Kellwood, with MDNR oversight, implemented the plan and sent soils known to be contaminated with PCE at levels equal to or in excess of 380 parts per million ("ppm") to an off-site incinerator for thermal treatment and off-site disposal. Pursuant to the Agreement, the remaining contaminated soils were to be "land farmed until individual levels of PCE and each of its degradation products are reduced to 1 ppm or below."

12. In 1999, a Phase I and II environmental site assessment was performed by Environmental Management Associates on behalf of a prospective purchaser on properties near the land farm area. During this site assessment PCE was detected in two groundwater monitoring wells located immediately adjacent to the southwest corner of the land farm area - wells "OU2-MW-2" and "OU2-MW-2A" - and in a well located approximately 600 feet to the southwest of the land farm area ("OU2-MW-4"). (The monitoring wells referenced herein are generally depicted on Attachment 1.)

13. In March 1999, the United States Geological Survey ("USGS"), acting on behalf of the EPA, conducted a well inventory in the New Haven area. During this well inventory, on

March 24, 1999, a trace quantity, estimated by the laboratory to be 0.11 micrograms per liter ("µg/L"), of PCE was discovered in a residential water well ("OUX-JS-14") located approximately 2,000 feet to the southwest of the land farm area. This well water was resampled on January 16, 2002, and found to contain PCE at 1.4 µg/L.

14. Water-table groundwater measurements taken during the well inventory conducted during March of 1999 demonstrate that shallow groundwater flow in the vicinity of the land farm area was to the south-southwest.

15. In January 2001, the USGS installed a groundwater monitoring well ("OU2-BW-21") approximately 700 feet to the southwest of the land farm area. A water sample obtained during the drilling of this well at the 0-59 foot interval contained PCE at 77 µg/L. After this discovery, drilling was halted at 62 feet and a water sample was obtained the following day from the open borehole using a submersible pump. This "pumped" sample contained PCE at 680 µg/L. Another water sample obtained during the drilling of this well from the 59-100 foot interval contained PCE at 1,187 µg/L.

16. On January 24, 2001, the USGS sampled the water in a creek located approximately 1,800 feet southwest of the land farm area to ascertain if contaminated shallow groundwater in the area may be discharging into the creek. This water sample contained PCE at 31 µg/L. The water in this creek was sampled again in June, August, and November of 2001, These samples indicated the presence of PCE at 32, 56, and 58 µg/L, respectively. During 2002 the water in this creek was sampled in March and July. These samples indicated the presence of PCE at 15, and 100 µg/L, respectively.

17. On February 6, 2001, the USGS began installing a second groundwater monitoring well ("OU2-BW-22") at a location approximately 270 feet south of well OU2-BW-21. A water sample was obtained from this well at the depth of 66 feet. This sample contained PCE at 1,170 µg/L. In March 2001, the USGS installed a shallow monitoring well adjacent to OU2-BW-21, this shallow well is known as "OU2-BW-21A". Well OU2-BW-21A monitors the

groundwater at a depth of 43-52 feet. The water from this well was sampled on June 11, 2001, August 21, 2001, and July 30, 2002. On the first two sampling events PCE was found to be present in the water at 1,000 µg/L; on the third sampling event PCE was found to be present in the water at 970 µg/L.

18. On April 9, 2001, the USGS began installing a groundwater monitoring well ("OU2-BW-20") within the land farm area. On April 13, 2001, a water sample was obtained from this well at the depth of 5-10 feet. This sample contained PCE at 23,000 µg/L. A second water sample obtained from this well on April 17, 2001, at the 10-20 foot interval contained PCE at 200,000 µg/L. On May 22, 2001, this well was again sampled from the bottom of the 10-20 interval; this water sample contained PCE at 1,400,000 µg/L.

19. On November 16, 2001, the USGS sampled a residential drinking water well located approximately 2,300 feet to the south of the land farm area (this well is referred to as "OU2-JS-36"). Two samples from this residence were obtained; one from an outside hydrant, and another from a faucet located in the kitchen. Both samples contained PCE at approximately 200 µg/L. On November 27, 2001, at the request of the EPA, Respondent, at its expense, installed a whole house filtration system to treat the water used at this residence.

20. On January 16, 2002, the USGS sampled a residential drinking water well located approximately 2,100 feet to the south of the land farm area (this well is referred to as "OU2-JS-37"). A water sample obtained from an outside hydrant at this residence contained PCE at 62 µg/L. On May 1, 2002, this hydrant was again sampled and this sample contained PCE at 69 µg/L. At the request of EPA and with the consent of the City of New Haven, Missouri, Respondent, at its expense, extended a water line from a city water main to this residence to provide an alternative water supply.

21. On July 10, 2002, the USGS sampled a residential drinking water well located approximately 4,300 feet to the south of the land farm area (this well is referred to as "OU2-JS-38"). A water sample obtained from an outside hydrant at this residence contained PCE at 9.8

µg/L. At the request of EPA, Respondent, at its expense, installed a whole house filtration system to treat the water used at this residence.

22. Pursuant to Section 1412 of the Safe Drinking Water Act, 42 U.S.C. § 300g-1, EPA has established, at 40 C.F.R. § 141.61(a), a Maximum Contaminant Level ("MCL") of 5 µg/L for PCE in public drinking water.

VII. CONCLUSIONS OF LAW AND DETERMINATIONS

23. The Site is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

24. The wastes and constituents thereof released at the Site identified in the Findings of Fact above, are each a "hazardous substance" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

25. The presence of hazardous substances at the Site or the past, present or potential migration of hazardous substances currently located at or emanating from the Site, constitute an actual and/or threatened "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

26. Respondent is a "person" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

27. Respondent is a responsible party pursuant to Sections 104, 107, and 122 of CERCLA, 42 U.S.C. §§ 9604, 9607 and 9622.

28. The actions required by this Order are necessary to protect the public health or welfare or the environment, are in the public interest, 42 U.S.C. § 9622(a), are consistent with CERCLA and the NCP, 42 U.S.C. §§ 9604(a)(I), 9622(a), and will expedite effective remedial action and minimize litigation, 42 U.S.C. § 9622(a).

VIII. DESIGNATION OF CONTRACTOR AND PROJECT COORDINATORS

29. Respondent has designated a Project Coordinator who shall be responsible for administration of all actions by Respondent required by this Order. To the greatest extent

possible, Respondent's Project Coordinator shall be readily available during Site work. While EPA does not disapprove of this Project Coordinator, EPA retains the right to disapprove of the designated Project Coordinator upon written notice to Respondent containing the reasons for the disapproval. If EPA disapproves of the designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 30 days of Respondent's receipt of EPA's written notice of disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from EPA relating to this Order shall constitute receipt by Respondent. Respondent's Project Coordinator is:

Susan Fullerton, P.E.
Parsons Corporation
999 Oakmont Plaza Drive, Suite 420
Westmont, Illinois 60559
Telephone: 630-371-1800
Facsimile: 630-371-1818
E-mail: Susan.Fullerton@Parsons.com

30. Respondent has retained Parsons Commercial Technology Group as its primary contractor to perform the Work. While EPA does not disapprove of this contractor, EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondent upon written notice to Respondent containing the reasons for the disapproval. If EPA disapproves of a contractor, Respondent shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within 30 days of Respondent's receipt of EPA's written notice of disapproval. While performing the Work, Respondent's primary contractor shall continuously maintain a quality system which complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Date Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), prepared in accordance with "EPA requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001), or equivalent documentation as determined by EPA. Respondent has submitted a Quality Management Plan (dated September 2003) to EPA for its primary contractor,

Parsons Commercial Technology Group, which EPA has reviewed and accepts. Failure to continuously maintain such a quality management system while performing Work may result in the disapproval of Respondent's primary contractor.

31. EPA has designated Shelley Brodie of EPA Region VII's Superfund Division as its Project Coordinator for this Order. Except as otherwise provided in this Order, Respondent shall direct all submissions required by this Order to:

Shelley Brodie
SUPR/MOKS
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101
Telephone: 913-551-7706
Facsimile: 913-551-9706
brodie.shelley@epa.gov

32. EPA and Respondent shall have the right, subject to Paragraph 29, to change their respective Project Coordinators. Respondent shall notify EPA 10 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notice.

33. Documents including reports, approvals, disapprovals, and other correspondence which must be submitted under this Order shall be sent by certified mail, return receipt requested, to the designated Project Coordinator.

34. EPA's Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the NCP to halt any work required by this Order and to take any necessary response action when s/he determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of EPA's Project Coordinator from the Site shall not be cause for the stoppage or delay of work.

IX. WORK TO BE PERFORMED

35. All Work performed under this Order shall be under the direction and supervision of qualified personnel. Within 30 days of the effective date of this Order, and before the Work begins, Respondent shall provide to EPA the names, titles, and qualifications of the principal personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out the Work. The qualifications of the persons undertaking the Work for Respondent shall be subject to EPA's review, for verification that such persons meet minimum technical background and experience requirements. This Order is contingent on Respondent's demonstration to EPA's satisfaction that Respondent is qualified, and continues to be qualified, to perform properly and promptly the Work. If EPA disapproves in writing of any of Respondent's proposed personnel, contractors, subcontractors, consultants, or laboratories, Respondent shall notify EPA of the identity and qualifications of the replacement within 30 days of receipt of EPA's written notice of disapproval. If EPA subsequently disapproves of the replacement by written notice containing the reasons for the disapproval, EPA may terminate this Order and to conduct an RI/FS, and to seek reimbursement for costs and penalties from Respondent. During the course of the RI/FS, Respondent shall notify EPA in writing of any changes or additions to the personnel used to carry out such work, providing their names, titles, and qualifications. EPA shall have the same right to approve changes and additions to personnel as it has hereunder regarding the initial notification.

36. Respondent shall conduct activities and submit deliverables in accordance with and as provided by the RI/FS Statement of Work which is attached hereto as Attachment 2, and which is incorporated herein by this reference. All such work shall be conducted in accordance with CERCLA, the NCP, and EPA guidance including, but not limited to, the "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (Interim Final)," EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988, guidances referenced therein, and guidances referenced in the RI/FS Statement of Work, as may be amended or modified by

EPA. The general activities that Respondent is required to perform are identified below. The tasks that Respondent must perform are described more fully in the RI/FS Statement of Work and guidances. The activities and deliverables identified below shall be developed as provisions in the RI/FS Work Plan and Sampling and Analysis Plan, and shall be submitted to EPA as provided. All work performed under this Order shall be in accordance with the schedules herein, and in full accordance with the standards, specifications, and other requirements of the RI/FS Work Plan and Sampling and Analysis Plan, as initially approved or modified by EPA, and as may be amended or modified by EPA from time to time.

a. Task 1: Scoping. EPA determines the Site-specific objectives of the RI/FS and devises a general management approach for the Site, as stated in the RI/FS Statement of Work. Respondent shall conduct the remainder of scoping activities as described in the RI/FS Statement of Work and referenced guidances. At the conclusion of the project planning phase, Respondent shall provide EPA with the following deliverables:

1. RI/FS Work Plan. Within 60 days of the effective date of this Order, Respondent shall submit to EPA for review and approval an RI/FS Work Plan. If EPA disapproves of or requires revisions to the RI/FS Work Plan, Respondent shall amend and submit to EPA a revised RI/FS Work Plan which is responsive to all of EPA's comments within 21 days of receiving EPA's comments.

2. Sampling and Analysis Plan. Within 30 days of EPA's approval of the RI/FS Work Plan, Respondent shall submit to EPA for review and approval a Sampling and Analysis Plan ("SAP") . The SAP shall consist of a Field Sampling Plan ("FSP") and a Quality Assurance Project Plan ("QAPP") as described in the RI/FS Statement of Work and EPA guidances including, without limitation, "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998), and "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA 240/B-01/003, March 2001). If EPA disapproves of or requires revisions to the SAP, Respondent shall amend and submit to EPA a revised SAP which is

responsive to all of EPA's comments within 30 days of receiving EPA's comments.

3. Health and Safety Plan. Within 30 days of the effective date of this Order, Respondent shall submit to EPA for review and comment a Health and Safety Plan ("HSP"). If EPA requires revisions to the HSP, Respondent shall amend and submit to EPA a revised HSP which is responsive to all of EPA's comments within 14 days of receiving EPA's comments.

b. Task 2: Community Relations Plan. EPA will prepare a community relations plan, in accordance with EPA guidance and the NCP. Upon request, Respondent shall provide information supporting EPA's community relations programs.

c. Task 3: Site Characterization. Following EPA approval or modification of the RI/FS Work Plan and SAP, Respondent shall implement the provisions of each to characterize the Site. During Site characterization, Respondent shall provide EPA with the following deliverables, as described in the RI/FS Statement of Work:

1. Data Analysis Technical Memoranda. Respondent shall evaluate the data generated during the RI and submit to EPA, within 75 days of the collection of the final sample for each data set, a technical memorandum setting forth the results of such evaluation. If EPA disapproves of, or requires revisions to, the data analysis technical memorandum, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised data analysis technical memorandum which is responsive to all of EPA's written comments within 14 days of receiving EPA's comments.

2. Fate and Transport Technical Memorandum. Respondent shall perform an environmental fate and transport evaluation, which may require modeling, and submit to EPA, within 60 days of the collection of the final field samples, a technical memorandum setting forth the results of such modeling and/or evaluation. If EPA disapproves of, or requires revisions to, the fate and transport technical memorandum, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to

EPA a revised fate and transport technical memorandum which is responsive to all of EPA's written comments within 30 days of receiving EPA's comments.

3. Modeling Technical Memorandum. Within 60 days of receipt of written request by EPA, which request may only be made after the approval of the RI/FS Work Plan, Respondent shall submit to EPA for review and approval, a Modeling Technical Memorandum. If EPA disapproves of, or requires revisions to, the Modeling Technical Memorandum, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Modeling Technical Memorandum which is responsive to all of EPA's written comments within 14 days of receiving EPA's comments.

4. Conceptual Exposure Pathway Analysis. Within 60 days of the effective date of this Order, Respondent shall submit to EPA for review and approval, a Conceptual Exposure Pathway Analysis as an appendix to the RI/FS Work Plan. If EPA disapproves of, or requires revisions to, the Conceptual Exposure Pathway Analysis, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Conceptual Exposure Pathway Analysis which is responsive to all of EPA's written comments within 21 days of receiving EPA's comments.

5. Candidate Technologies Technical Memorandum. Within 30 days of Respondent's submittal of the draft Remedial Investigation Report, Respondent shall submit to EPA for review and approval a technical memorandum identifying candidate technologies. If EPA disapproves of or requires revisions to the technical memorandum identifying candidate technologies, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised technical memorandum identifying candidate technologies which is responsive to all of EPA's written comments within 14 days of receiving EPA's comments.

6. Preliminary Site Characterization Summary. Within 60 days of the collection of the final field samples, Respondent shall submit to EPA for review and approval, a

preliminary Site characterization summary. If EPA disapproves of, or requires revisions to, the preliminary Site characterization summary, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised preliminary Site characterization summary which is responsive to all of EPA's written comments within 30 days of receiving EPA's comments.

7. Remedial Investigation Report. Within 120 days of the collection of the final field samples, Respondent shall submit to EPA for review and approval, a Remedial Investigation (RI) Report. If EPA disapproves of, or requires revisions to, the RI Report, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised RI Report which is responsive to all of EPA's written comments within 40 days of receiving EPA's comments.

d. Task 4: Treatability Studies. If requested in writing by EPA, Respondent shall conduct treatability studies to demonstrate the effectiveness of a candidate technology at the Site. Major components of the treatability studies include determination of the need for and scope of studies, the design of the studies and the completion of the studies as described in the Statement of Work. If treatability studies are required by EPA, Respondent shall provide EPA with the following deliverables:

1. Treatability Testing Work Plan. If EPA determines that treatability testing is required, Respondent shall, within 30 days of receiving EPA's written request specifying what treatability testing EPA believes is appropriate, submit to EPA for review and approval a Treatability Testing Work Plan, including a schedule. If EPA disapproves of or requires revisions to the Treatability Testing Work Plan, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Treatability Testing Work Plan which is responsive to all of EPA's written comments within 14 days of receiving EPA's comments.

2. Treatability Study Sampling and Analysis Plan. Within 30 days of the

identification of the need for a separate or revised QAPP or FSP, Respondent shall submit to EPA for review and approval a Treatability Study SAP. If EPA disapproves of, or requires revisions to, the Treatability Study SAP, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Treatability Study SAP which is responsive to all of EPA's written comments within 14 days of receiving EPA's comments.

3. Treatability Study Health and Safety Plan. Within 30 days of the identification in writing by EPA of the need for a revised health and safety plan, Respondent shall submit to EPA for review and comment a Treatability Study HSP. If EPA requires revisions to the Treatability Study HSP, EPA will provide to Respondent a written explanation for the required revisions. Respondent shall amend and submit to EPA a revised treatability study health and safety plan which is responsive to all of EPA's written comments within 14 days of receiving EPA's comments.

4. Treatability Study Evaluation Report. Within 30 days of completion of treatability testing for a treatability study, Respondent shall submit to EPA for review and approval a Treatability Study Evaluation Report as provided in the Treatability Testing Statement of Work and Treatability Testing Work Plan. If EPA disapproves of or requires revisions to the Treatability Study Evaluation Report, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Treatability Study Evaluation Report which is responsive to all of EPA's written comments within 21 days of receiving EPA's comments.

e. Task 5: Development and Screening of Remedial Alternatives. Respondent shall develop an appropriate range of remedial alternatives that will be evaluated through the development and screening of alternatives as provided in the statement of work and work plan. During the development and screening of alternatives, Respondent shall provide EPA with the following deliverables:

1. Remedial Action Objectives Technical Memorandum. Within 30 days of Respondent's completion of the Baseline Risk Assessment, Respondent shall submit to EPA for review and approval a Remedial Action Objectives Technical Memorandum. If EPA disapproves of or requires revisions to the Remedial Action Objectives Technical Memorandum, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Remedial Action Objectives Technical Memorandum which is responsive to all of EPA's written comments within 21 days of receiving EPA's comments.

2. Development and Preliminary Screening of Alternatives, Assembled Alternatives Screening Results and Final Screening Technical Memorandum. Within 30 days of receipt of EPA's approval of the Remedial Action Objectives Technical Memorandum, Respondent shall submit to EPA for review and approval a Development and Preliminary Screening of Alternatives, Assembled Alternatives Screening Results and Final Screening Technical Memorandum summarizing the development and screening of remedial alternatives. If EPA disapproves of or requires revisions to the Development and Preliminary Screening of Alternatives, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Development and Preliminary Screening of Alternatives, Assembled Alternatives Screening Results and Final Screening Technical Memorandum which is responsive to all of EPA's written comments within 21 days of receiving EPA's comments.

f. Task 6: Detailed Analysis of Remedial Alternatives. Respondent shall conduct a detailed analysis of remedial alternatives as described in the RI/FS Statement of Work and approved RI/FS Work Plan. During the detailed analysis of alternatives, Respondent shall provide EPA with the following:

1. Comparative Analysis Report and Presentation to EPA. Within 30 days of receipt of EPA's written approval of the Development and Preliminary Screening of Alternatives,

Assembled Alternatives Screening Results and Final Screening Technical Memorandum, Respondent shall submit to EPA for review and approval, a Comparative Analysis Report to EPA summarizing the results of the comparative analysis performed among the remedial alternatives. If EPA disapproves of, or requires revisions to, the Comparative Analysis Report, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised Comparative Analysis Report which is responsive to all of EPA's written comments within 21 days of receiving EPA's comments.

2. Feasibility Study Report. Within 30 days of receipt of EPA's written approval of the Comparative Analysis Report, Respondent shall submit to EPA for review and approval, a Feasibility Study (FS) Report. Respondent shall refer to Table 6-5 of the RI/FS Guidance for suggested report content and format. If EPA disapproves of, or requires revisions to, the FS Report, EPA will provide to Respondent a written explanation for the disapproval or required revisions. Respondent shall amend and submit to EPA a revised FS Report which is responsive to all of EPA's written comments within 21 days of receiving EPA's comments. The report, as amended, and the administrative record shall provide the basis for the proposed plan under Sections 113(k) and 117(a) of CERCLA by EPA and shall document the development and analysis of remedial alternatives.

37. EPA reserves the right to comment on, modify and direct changes for all deliverables. At EPA's discretion, Respondent must fully correct all deficiencies and incorporate and integrate all information and comments supplied by EPA either in subsequent or resubmitted deliverables.

38. Respondent shall not proceed further with any subsequent activities or tasks until receiving EPA approval for the following deliverables: RI/FS Work Plan, SAP, Treatability Testing Work Plan (if required), and Remedial Investigation Report. While awaiting EPA approval on these deliverables, Respondent shall proceed with all other tasks and activities which may be conducted independently of these deliverables, in accordance with the schedule set forth

in this Order.

39. For all remaining deliverables not enumerated in the preceding paragraph, which may be conducted independently of the deliverables in the preceding paragraph, Respondent shall proceed with all subsequent tasks, activities, and deliverables without awaiting EPA approval on the submitted deliverable. EPA reserves the right to stop Respondent from proceeding further, either temporarily or permanently, on any task, activity or deliverable at any point during the RI/FS. Respondent will not be subject to stipulated penalties hereunder for failure to submit a deliverable to EPA in a timely manner when Respondent's failure to submit/or delay in submitting such deliverable is directly attributable to EPA's stoppage of work.

40. In the event that Respondent amends or revises a report, plan, or other submittal upon receipt of EPA comments, and (i) EPA subsequently disapproves of the revised submittal, or (ii) subsequent submittals do not fully reflect EPA's directions for changes, EPA will so notify Respondent. EPA and Respondent shall then have 7 business days to meet or participate in a conference call to discuss and attempt to resolve the issues. If agreement is not reached or if any submittal revised pursuant to the agreement reached is disapproved of by EPA, EPA retains the right to seek stipulated or statutory penalties, perform its own studies, complete the RI/FS (or any portion of the RI/FS), and seek reimbursement from Respondent for its costs and/or seek any other appropriate relief. If EPA chooses to conduct the RI/FS or any portion thereof, it will immediately notify Respondent what Work it is taking over. Respondent will not be liable for stipulated penalties for failure to submit subsequent deliverables directly related to Work taken over by EPA.

41. In the event that EPA takes over some of the tasks but not the preparation of the RI/FS, Respondent shall incorporate and integrate information supplied by EPA into the final RI/FS Report. To the extent that EPA's information is transmitted to Respondent after the collection of the final field sampling under paragraph 36.c.7., the time for submitting the RI report shall be extended to 30 days from Respondent's receipt of the information from EPA.

42. Neither failure of EPA to expressly approve or disapprove of Respondent's submissions within a specified time period(s) nor the absence of comments, shall be construed as approval by EPA. Whether or not EPA gives express approval for Respondent's deliverables, Respondent is responsible for preparing deliverables acceptable to EPA.

43. Respondent shall, prior to any off-site shipment of hazardous substances from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving state and to EPA's Designated Project Coordinator of such shipment. However, the notification of shipments shall not apply to any such off-site shipments when the total volume of such shipments will not exceed 10 cubic yards.

(a) The notification shall be in writing and shall include the following information where available: (1) the name and location of the facility to which the hazardous substances are to be shipped; (2) the type and quantity of the hazardous substances to be shipped; (3) the expected schedule for the shipment of the hazardous substances; and (4) the method of transportation. Respondent shall notify the receiving state of major changes in the shipment plan such as a decision to ship the hazardous substances to another facility within the same state, or to a facility in another state.

(b) The identity of the receiving facility and state will be determined by Respondent following the award of the contract for the RI/FS. Respondent shall provide all relevant information including information under the categories noted in paragraph 33(a) above on the off-site shipments as soon as practical after the award of the contract and before the hazardous substances are actually shipped.

X. MODIFICATION OF THE RI/FS WORK PLAN

44. If at any time during the RI/FS process, Respondent identifies a need for additional data, a memorandum documenting the need for additional data shall be submitted to the EPA Project Coordinator within 30 days of identification. EPA in its discretion will determine whether the additional data will be collected by Respondent and whether it will be

incorporated into reports and deliverables.

45. In the event of conditions posing an immediate threat to human health or welfare or the environment, Respondent shall notify EPA and the State immediately. In the event of unanticipated or changed circumstances at the Site, Respondent shall notify the EPA Project Coordinator by telephone within 24 hours of discovery of the unanticipated or changed circumstances. In addition to the authorities in the NCP, in the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA may modify or amend the RI/FS Work Plan in writing accordingly. Respondent shall implement the RI/FS Work Plan as modified or amended.

46. Prior to EPA's approval of the RI Report, EPA may determine that in addition to tasks defined in the initially approved RI/FS Work Plan, other work may be necessary to accomplish the objectives of the RI/FS as set forth in the RI/FS Statement of Work. EPA may require that Respondent perform this work in addition to that required by the initially approved RI/FS Work Plan including any approved modifications if it determines that such actions are necessary for a complete RI/FS for the Site. Respondent shall confirm its willingness to perform the additional work in writing to EPA within 7 business days of receipt of the EPA request or Respondent shall invoke dispute resolution. Subject to EPA resolution of any dispute, Respondent shall implement the additional tasks which EPA determines are necessary. The additional work shall be completed according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written supplement. Upon 5 business days written notice to Respondent, EPA reserves the right to conduct the work itself at any point, to seek reimbursement from Respondent and/or to seek any other appropriate relief.

XI. QUALITY ASSURANCE

47. Respondent shall assure that work performed, samples taken and analyses conducted conform to the requirements of the RI/FS Statement of Work, the QAPP, and the

guidances identified therein. Respondent will assure that field personnel used by Respondent are properly trained in the use of field equipment and in chain of custody procedures. Respondent shall only use laboratories which have a documented quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995) and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program (NELAP) to meet the quality system requirements.

XII. FINAL RI/FS, PROPOSED PLAN, PUBLIC COMMENT, RECORD OF DECISION, ADMINISTRATIVE RECORD

48. EPA retains the responsibility for the release to the public of the RI/FS Report. EPA retains responsibility for the preparation and release to the public of the proposed plan and record of decision in accordance with CERCLA and the NCP.

49. EPA will provide Respondent with the final RI/FS Report, proposed plan and record of decision.

50. EPA will determine the contents of the administrative record file for selection of the remedial action. Respondent must submit to EPA documents developed during the course of the RI/FS upon which selection of the response action may be based. Respondent shall provide copies of plans, task memoranda including documentation of field modifications, recommendations for further action, quality assurance memoranda and audits, raw data, field notes, laboratory analytical reports and other reports. Respondent must additionally submit any previous studies conducted under state, local, or other federal authorities relating to selection of the response action, and all communications between Respondent and state, local, or other federal authorities concerning selection of the response action.

XIII. PROGRESS REPORTS AND MEETINGS

51. Upon at least 10 days prior written notice to Respondent's Project Coordinator, Respondent shall make presentations at and participate in meetings at the request of EPA during the initiation, conduct, and completion of the RI/FS. In addition to discussion of the technical aspects of the RI/FS, topics will include anticipated problems or new issues. Meetings will be scheduled at a mutually agreed upon date and time.

52. In addition to the deliverables set forth in this Order, Respondent shall provide to EPA monthly progress reports by the 10th day of the following month. At a minimum, with respect to the preceding month, these progress reports shall: (a) describe the actions which have been taken to comply with this Order during that month; (b) include all results of sampling and tests and all other data received by the Respondent; (c) describe work planned for the next two months with schedules relating such work to the overall project schedule for RI/FS completion; and (d) describe all problems encountered and any anticipated problems, any actual or anticipated delays, and solutions developed and implemented to address any actual or anticipated problems or delays.

XIV. SAMPLING, ACCESS, AND DATA AVAILABILITY/ADMISSIBILITY

53. All results of sampling, tests, modeling, or other data (including raw data) generated by Respondent or on Respondent's behalf, during implementation of this Order shall be submitted to EPA in the subsequent monthly progress report as described in Section XII of this Order. EPA will make available to Respondent validated data generated by EPA unless it is exempt from disclosure by any federal or state law or regulation.

54. Respondent will orally notify EPA at least 30 days prior to conducting significant field events as described in the RI/FS Statement of Work, RI/FS Work Plan, or SAP. At EPA's request, Respondent shall allow split or duplicate samples to be taken by EPA or its authorized representative, of any samples collected by Respondent in implementing this Order. All split samples of Respondent shall be analyzed by the methods identified in the QAPP.

55. At all reasonable times, EPA and its authorized representatives shall have the authority to enter and freely move about all property at the Site and off-Site areas where work, if any, is being performed for the purposes of inspecting conditions, activities, the results of activities, records, operating logs, and contracts related to the Site or Respondent and its contractor pursuant to this Order; reviewing Respondent's progress in carrying out the terms of this Order; conducting tests as EPA or its authorized representatives deem necessary; using a camera, sound recording device or other documentary type equipment; and verifying the data submitted to EPA by Respondent. Respondent shall allow these persons to inspect and copy all non-privileged records, files, photographs, documents, sampling and monitoring data and other writings related to work undertaken in carrying out this Order. Nothing herein shall be interpreted as limiting or affecting EPA's right of entry or inspection authority under federal law. All parties with access to the Site under this paragraph shall comply with all approved health and safety plans. Respondent's provision of access hereunder shall not constitute a waiver of any applicable privileges. Respondent is not responsible for EPA's compliance with access agreements.

56. Respondent may assert a claim of business confidentiality covering part or all of the information submitted to EPA pursuant to the terms of this Order under 40 C.F.R. § 2.203, provided such claim is allowed by Section104(e) (7) of CERCLA, 42 U.S.C. § 9604(e)(7). This claim shall be asserted in the manner described by 40 C.F.R. § 2.203(b) and substantiated at the time the claim is made. Information determined to be confidential by EPA will be given the protection specified in 40 C.F.R. Part 2. If no such claim accompanies the information when it is submitted to EPA, it may be made available to the public by EPA, or the state, without further notice to Respondent. Respondent agrees not to assert confidentiality claims with respect to any data related to Site conditions, sampling, or monitoring.

57. Subject to the CBI claim provision in the preceding paragraph, by entering into this Order, Respondent waives any objections to any data gathered, generated, or evaluated by

EPA, the State, or Respondent in the performance or oversight of the work that has been verified according to the QA/QC procedures required by this Order or any EPA approved work plans or sampling and analysis plans. If Respondent objects to any data relating to the RI/FS, Respondent shall submit to EPA a report that identifies and explains its objections, describes the acceptable uses of the data, if any, and identifies any limitations to the use of the data. The report must be submitted to EPA within 15 days of the monthly progress report containing the data.

58. If the Site, or the off-Site area that is to be used for access or is within the scope of the RI/FS, is owned in whole or in part by parties other than those bound by this Order, Respondent will obtain, or use its best efforts to obtain, site access agreements from the present owner within 90 days of the effective date of this Order. Such agreements shall provide access for EPA, its contractors and oversight officials, the State and its contractors, and Respondent or its authorized representatives and such agreements shall specify that Respondent is not EPA's representative with respect to liability associated with Site activities. Copies of such agreements shall be provided to EPA prior to Respondent's initiation of field activities. Respondent's best efforts shall include offering to provide reasonable compensation to any off-Site property owner. If access agreements are not obtained within the time referenced above, Respondent shall immediately notify EPA of its failure to obtain access. EPA may obtain access for Respondent, perform those tasks or activities with EPA contractors, or terminate this Order in the event that Respondent cannot obtain access agreements. In the event that EPA performs those tasks or activities with EPA contractors and does not terminate this Order, Respondent shall perform all other activities not requiring access to that Site, and shall reimburse EPA for all costs incurred in performing such activities. Respondent additionally shall integrate the results of any such tasks undertaken by EPA into its reports and deliverables. Furthermore, Respondent agrees to indemnify the U.S. Government as specified in Section XXIV of this Order. Respondent also shall reimburse EPA for all costs and attorney fees incurred by the United States to obtain access for Respondent pursuant to Section XX (Reimbursement of Costs). Respondent will not be

subject to stipulated penalties for instances where after having used its best efforts in attempting to obtain access, it has failed to obtain access.

XV. OTHER APPLICABLE LAWS

59. Respondent shall comply with all laws that are applicable when performing the RI/FS. No local, state, or federal permit shall be required for any portion of any action conducted entirely on-Site including studies where such action is selected and carried out in compliance with Section 121 of CERCLA.

XVI. RECORD PRESERVATION

60. All records and documents in Respondent's possession that relate in any way to the Site shall be preserved during the conduct of this Order and for a minimum of 10 years after commencement of construction of any remedial action. Respondent shall acquire and retain copies of all documents that relate to the Site and are in the possession of its employees, agents, accountants, contractors, or attorneys. After this 10 year period, Respondent shall notify EPA at least ninety 90 days before the documents are scheduled to be destroyed. If EPA requests that the documents be saved, the Respondent shall, at no cost to EPA, give EPA the documents or copies of the documents.

XVII. DISPUTE RESOLUTION

61. Unless otherwise expressly provided for in this Order, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Order. EPA and Respondent shall attempt to resolve any disagreements concerning this Order expeditiously and informally.

62. If Respondent objects to any EPA action taken pursuant to this Order, including billings for Future Response Costs, it shall notify EPA in writing of its objections within 10 days of such action, unless the objections have been resolved informally. EPA and Respondent shall have 14 days from EPA's receipt of Respondent's written objections to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be

extended at the sole discretion of EPA.

63. Any agreement reached by the Parties pursuant to this Section shall be in writing and shall, upon signature by both Parties, be incorporated into and become an enforceable part of this Order. If the Parties are unable to reach an agreement within the Negotiation Period, the Director of EPA Region VII's Superfund Division will issue a written decision on the dispute. EPA's decision shall be incorporated into and become an enforceable part of this Order. Respondent's obligations under this Order shall not be tolled by submission of any objection for dispute resolution under this Section unless mutually agreed upon (except as to a dispute which is resolved in Respondent's favor) or unless otherwise excused, tolled or suspended by EPA Region VII's Superfund Division Director. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

XVIII. DELAY IN PERFORMANCE/STIPULATED PENALTIES

64. For each day that Respondent fails to: (a) submit a deliverable in a timely manner, or (b) fails to produce a deliverable of acceptable quality, or (c) otherwise fails to perform in accordance with the requirements of this Order, Respondent shall be liable for stipulated penalties. Penalties begin to accrue on the day that performance is due or a violation occurs, and extend through the period of correction. Where a revised submission by Respondent is required, stipulated penalties shall continue to accrue until a satisfactory deliverable is received by EPA. EPA will provide written notice for violations that are not based on timeliness; nevertheless, penalties shall accrue from the day that a violation commences. Payment shall be due within 30 days of Respondent's receipt of a demand letter from EPA.

65. Respondent shall pay interest on the unpaid balance, which shall begin to accrue at the end of the 30-day period, at the rate established by the Department of Treasury pursuant to 30 U.S.C. § 3717. Respondent shall further pay a handling charge of 1 percent to be assessed at the end of each 31 day period and a 6 percent per annum penalty charge to be assessed if the

penalty is not paid in full within 90 days after it is due.

66. All penalties shall be paid by certified or cashier's check made payable to "Treasurer of the United States," and shall be remitted to:

Mellon Bank
EPA Region VII
(Comptroller Branch)
P.O. Box 36078M
Pittsburgh, Pennsylvania 15251

All payments shall reference the name of the Site, the Site identification number "07PY", and the docket number that appears on the face of this Order. A copy of the check and/or transmittal letter shall be forwarded to EPA's Project Coordinator.

67. For failing to submit any deliverable, including, without limitation, an original or revised work plan, sampling and analysis plan, health and safety plan, technical memorandum, summary or report, but not including monthly progress reports, stipulated penalties shall accrue in the amount of $375 per day, per violation, for the 1st through 7th days of noncompliance; $750 per day, per violation, for the 8th through 30th day of noncompliance; and $1,500 per day, per violation, for the 31st day and each succeeding day of noncompliance thereafter.

68. For the monthly progress reports, stipulated penalties shall accrue in the amount of $225 per day, per violation, for the 1st through 7th days of noncompliance; $450 per day, per violation, for the 8th through 30th day of noncompliance; and $900 per day, per violation, for the 31st day and each succeeding day of noncompliance thereafter. Stipulated penalties paid by Respondent shall be deposited in the EPA Hazardous Substance Superfund.

69. Respondent may dispute EPA's right to the stated amount of penalties by invoking the dispute resolution procedures set forth in Section XVII above. Penalties shall accrue but need not be paid during the dispute resolution period. If Respondent does not prevail upon resolution, all penalties shall be due to EPA within 30 days of resolution of the dispute. If Respondent prevails upon resolution, no penalties shall be paid.

70. In the event that EPA provides for corrections to be reflected in the next deliverable and does not require resubmission of that deliverable, stipulated penalties for that interim deliverable shall cease to accrue on the date of such decision by EPA.

71. The stipulated penalties provisions do not preclude EPA from pursuing any other remedies or sanctions which are available to EPA because of Respondent's failure to comply with this Order including, but not limited to, conduct of all or part of the RI/FS by EPA. Payment of stipulated penalties does not alter Respondent's obligation to complete performance under this Order.

XIX. COVENANT NOT TO SUE BY EPA

72. In consideration of the Performance of the Work and the payments that will be made by Respondent under this Order, and except as otherwise specifically provided in this Order, EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for the performance of the Work and the recovery of those Past Response Costs and Future Response Costs actually reimbursed by Respondent. This covenant not to sue shall take effect upon receipt by EPA of the Past Response Costs due under Section XXI (Reimbursement of Costs) of this Order and any Interest or Stipulated Penalties due for failure to pay Past Response Costs as required by Section XXI (Reimbursement of Costs) and Section XVIII (Delay in Performance/Stipulated Penalties) of this Order. This covenant not to sue is conditioned upon the complete and satisfactory performance by Respondent of it obligations under this Order, including, but not limited to, payment of Future Response Costs pursuant to Section XXI (Reimbursement of Costs). This covenant not to sue extends only to Respondent and does not extend to any other person.

XX. FORCE MAJEURE

73. Respondent agrees to perform all requirements of this Order within the time limits established under this Order, unless the performance is delayed by a *force majeure*. For purposes of this Order, a *force majeure* is defined as any event arising from causes beyond the control of

Respondent, or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work, or increased cost of performance.

74. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a *force majeure* event, Respondent shall notify EPA orally within 3 days of when Respondent first knew that the event might cause a delay. Within 5 days thereafter, Respondent shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if it intends to assert such a claim; and a statement as to whether, in Respondent's opinion, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

75. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Order that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondent in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XXI. REIMBURSEMENT OF COSTS

76. Reimbursement of Past Response Costs.

a. Respondent shall pay to EPA $440,000 in partial reimbursement of EPA's Past Response Costs for this operable unit. Payment shall be made in four installments of $110,000 each. The first payment shall be submitted to EPA within 30 days of the effective date of this Order, the second installment shall be submitted to EPA within 120 days of the effective date of this Order, the third installment shall be submitted to EPA within 210 days of the effective date of this Order, and the fourth and final installment shall be submitted to EPA within 300 days of the effective date of this Order. All payments shall be made by Electronic Funds Transfer ("EFT") in accordance with current EFT procedures to be provided to Respondent by EPA Region VII, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, the EPA Region and Site/Spill ID Number 07PY, and the EPA docket number for this action.

b. At the time of payment, Respondent shall send notice that such payment has been made to EPA's Project Coordinator.

c. The total amount to be paid by Respondent pursuant to Paragraph 76(a) shall be deposited in the Riverfront Superfund Site Special Account within the EPA Hazardous Substance Superfund, and may be transferred by EPA to the EPA Hazardous Substance Superfund.

77. Reimbursement of Future Response Costs.

a. Respondent shall reimburse EPA for all Future Response Costs not inconsistent with the NCP. On a periodic basis, EPA will send to Respondent a bill requiring payment that includes a Regionally-prepared cost summary, which includes direct and indirect costs incurred by EPA and its contractors. Respondent shall make all payments within 30 days of receipt of each bill requiring payment, except as otherwise provided in Paragraph 79 of this Order.

b. All payments of Future Response Costs shall be made by EFT in accordance with current EFT procedures to be provided to Respondent by EPA Region VII, and shall be accompanied by a statement identifying the name and address of the party making payment, the Site name, the EPA Region and Site/Spill ID Number 07PY, and the EPA docket number for this action.

c. At the time of payment, Respondent shall send notice that such payment has been made to EPA's Project Coordinator

d. The total amount to be paid by Respondent pursuant to Paragraph 77(a) shall be deposited in the Riverfront Superfund Site Special Account within the EPA Hazardous Substance Superfund, and may be transferred by EPA to the EPA Hazardous Substance Superfund..

78. In the event that the initial payment for Past Response Costs is not made within 30 days of the Effective Date, or the payments for Future Response Costs are not made within 30 days of Respondent's receipt of a bill, Respondent shall pay Interest on the amount of such unpaid balance. The Interest on Past Response Costs shall begin to accrue on the payment date for that installment and shall continue to accrue until the date of payment. The Interest on Future Response Costs shall begin to accrue 30 days from Respondent's receipt of each billing and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondent's failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XVIII.

79. Respondent may dispute all or part of a bill for Future Response Costs submitted under this Order, if Respondent alleges that EPA has made an accounting error, or if Respondent alleges that a cost item is inconsistent with the NCP. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondent shall pay the full amount of the uncontested costs to EPA as

specified in Paragraph 77 on or before the due date. Within the same time period, Respondent shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondent shall simultaneously transmit a copy of both checks to EPA's Project Coordinator. Respondent shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which they prevailed from the escrow funds plus interest within 7 days after the dispute is resolved.

XXII. RESERVATIONS OF RIGHTS

80. EPA reserves the right to bring an action against Respondent pursuant to Section 107 of CERCLA for recovery of all response costs including oversight costs incurred by the United States at the Site that are not reimbursed by Respondent, any costs incurred in the event that EPA performs the RI/FS or any part thereof, and any future costs incurred by the United States in connection with response activities conducted under CERCLA at the Site.

81. EPA reserves the right to bring an action against Respondent to recover unreimbursed Past Response Costs, and to enforce the Past Response Costs and Future Response Costs reimbursement requirements of this Order, to collect stipulated penalties assessed pursuant to Section XVIII of this Order, and to seek penalties pursuant to Section 109 of CERCLA, 42 U.S.C. § 9609.

82. Except as expressly provided in this Order, each party reserves all rights and defenses it may have. Nothing in this Order shall affect EPA's removal authority or EPA's response or enforcement authorities including, but not limited to, the right to seek injunctive relief, stipulated penalties, statutory penalties, and/or punitive damages.

83. Following satisfaction of the requirements of this Order, Respondent shall have resolved its liability to EPA for the work performed by Respondent pursuant to this Order. Respondent is not released from liability, if any, for any response actions taken beyond the scope of this Order regarding removals, other operable units, remedial design/remedial action of this operable unit, or activities arising pursuant to Section 121(c) of CERCLA.

XXIII. DISCLAIMER

84. By signing this Order and taking actions under this Order, Respondent does not necessarily agree with EPA's Findings of Fact and Conclusions of Law. Furthermore, the participation of Respondent in this Order shall not be considered an admission of liability and is not admissible in evidence against Respondent in any judicial or administrative proceeding other than a proceeding by the United States, on behalf of EPA, to enforce this Order or a judgment relating to it. Respondent retains its rights to assert claims against other potentially responsible parties at the Site. However, the Respondent agrees not to contest the validity or terms of this Order, or the procedures underlying or relating to it in any action brought by the United States, including EPA, to enforce its terms. Respondent may, however, contest EPA's interpretation of the language of this Order in any such action to enforce the Order.

XXIV. OTHER CLAIMS

85. In entering into this Order, Respondent waives any right to seek reimbursement under Section 106(b) of CERCLA. Respondent also waives any right to present a claim under Section 111 or 112 of CERCLA. This Order does not constitute any decision on preauthorization of funds under Section 111(a)(2) of CERCLA. Respondent further waives all other statutory and common law claims against EPA including, but not limited to, contribution and counterclaims relating to or arising out of the conduct of the RI/FS. Respondent, however, does not waive any rights that it may have under the Federal Tort Claims Act, 28 U.S.C. §§ 1346(b), 2671 *et seq.*

86. Nothing in this Order shall constitute or be construed as a release from any claim, cause of action, or demand in law or equity against any person, firm, partnership, subsidiary or corporation not a signatory to this Order for any liability it may have arising out of or relating in any way to the generation, storage, treatment, handling, transportation, releases or disposal of any hazardous substances, pollutants, or contaminants found at, taken to, or taken from the site.

87. Except as otherwise provided herein, the Parties shall bear their own costs and attorneys fees.

XXV. CONTRIBUTION PROTECTION

88. EPA and Respondent agree that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Order. The "matters addressed" in this Order are the: (a) Work; (b) partial reimbursement of Past Response Costs; and (c) payment of Future Response Costs. Nothing in this Order precludes the United States or Respondent from asserting any claims, causes of action, or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

XXVI. INDEMNIFICATION

89. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Order. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys' fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, subcontractors and any persons acting on their behalf or under its control, in carrying out activities pursuant to this Order. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Order. Neither Respondent nor any such contractor shall be considered an agent of the United States.

90. The United States will give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and will consult with Respondent prior to settling such claim.

91. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

XXVII. INSURANCE

92. At least 7 days prior to commencing any on-Site work under this Order, Respondent's consultants shall provide proof of, and shall maintain for the duration of this Order, comprehensive general liability insurance and automobile insurance with limits of $3 million, combined single limit. Within the same time period, Respondent shall provide EPA with certificates of such insurance. In addition, for the duration of the Order, Respondent shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the work on behalf of Respondent in furtherance of this Order. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVIII. FINANCIAL ASSURANCE

93. Within 60 days of the Effective Date, Respondent shall establish and maintain financial security in an amount equal to the estimated cost of performing the Work in one or more of the following forms:

a. A surety bond guaranteeing performance of the Work;

b. One or more irrevocable letters of credit equaling the total estimated cost of the Work required to be performed pursuant to this Order;

c. A trust fund;

d. A guarantee to perform the Work by one or more parent corporations or subsidiaries, or by one or more unrelated corporations that have a substantial business relationship with Respondent; or

e. A demonstration that Respondent satisfies the requirements of 40 C.F.R. § 264.143(f).

94. If Respondent seeks to demonstrate its ability to complete the Work through a guarantee by a third party pursuant to Paragraph 89(a) of this Section, Respondent shall demonstrate that the guarantor satisfies the requirements of 40 C.F.R. § 264.143(f). If Respondent seeks to demonstrate its ability to complete the Work by means of the financial test or the corporate guarantee pursuant to Paragraph 89(d) or (e) of this Section, it shall resubmit sworn statements conveying the information required by 40 C.F.R. § 264.143(f) annually, on the anniversary of the Effective Date. In the event that EPA determines at any time that the financial assurances provided pursuant to this Section are inadequate, Respondent shall, within 30 days of receipt of notice of EPA's determination, obtain and present to EPA for approval one of the other forms of financial assurance listed in Paragraph 89 of this Section. Respondent's inability to demonstrate financial ability to complete the Work shall not excuse performance of any activities required under this Order.

95. If, after the Effective Date, Respondent can show that the estimated cost to complete the remaining Work has diminished, Respondent may, on any anniversary date of the Effective Date, or at any other time agreed to by the Parties, reduce the amount of the financial security provided under this Section to the estimated cost of the remaining Work to be performed. Respondent shall submit a proposal for such reduction to EPA, in accordance with

the requirements of this Section, and may reduce the amount of the security upon approval by EPA. In the event of a dispute, Respondent may reduce the amount of the security in accordance with the written decision resolving the dispute.

96. Respondent may change the form of financial assurance provided under this Section at any time, upon notice to and approval by EPA, provided that the new form of assurance meets the requirements of this Section. In the event of a dispute, Respondent may change the form of the financial assurance only in accordance with the written decision resolving the dispute.

XXIX. EFFECTIVE DATE AND SUBSEQUENT MODIFICATION

97. The effective date of this Order shall be the date it is signed by the Director of EPA Region VII's Superfund Division.

98. This Order may be amended by mutual agreement of EPA and Respondent Amendments shall be in writing and shall be effective when signed by EPA. EPA Project Coordinators do not have the authority to sign amendments to the Order.

99. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules and any other writing submitted by Respondent will be construed as relieving Respondent of its obligation to obtain such formal approval as may be required by this Order. Any deliverables, plans, technical memoranda, reports (other than progress reports) specifications, schedules and attachments required by this Order are, upon approval by EPA, incorporated into this Order.

XXX. TERMINATION AND SATISFACTION

100. This Order shall terminate when Respondent demonstrates in writing and certifies to the satisfaction of EPA that all activities required under this Order including any additional work, payment of past costs, response and oversight costs and any stipulated penalties demanded by EPA have been performed and EPA has approved the certification. This notice shall not, however, terminate Respondent's obligation to comply with Sections XVI (Record

Preservation), XX (Reimbursement of Costs), and XXI (Reservation of Rights) of this Order. This Order and all obligations imposed hereby shall also terminate upon a determination by a Federal Court in a proceeding in which both Respondent and EPA are parties that Respondent is not liable for the contamination at the Site.

101. The certification shall be signed by a responsible official representing each Respondent. Each representative shall make the following attestation: "I certify that the information contained in or accompanying this certification is true, accurate, and complete." For purposes of this Order, a responsible official is a corporate official who is in charge of a principal business function. The responsible corporate officer shall be able to reasonably rely on the qualified personnel approved by EPA to perform the Work required by this Order and the representations of EPA's Project Coordinator in making this certification.

FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

3-16-04
Date

CECILIA TAPIA
Director, Superfund Division
U.S. Environmental Protection
Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101

3/12/04
Date

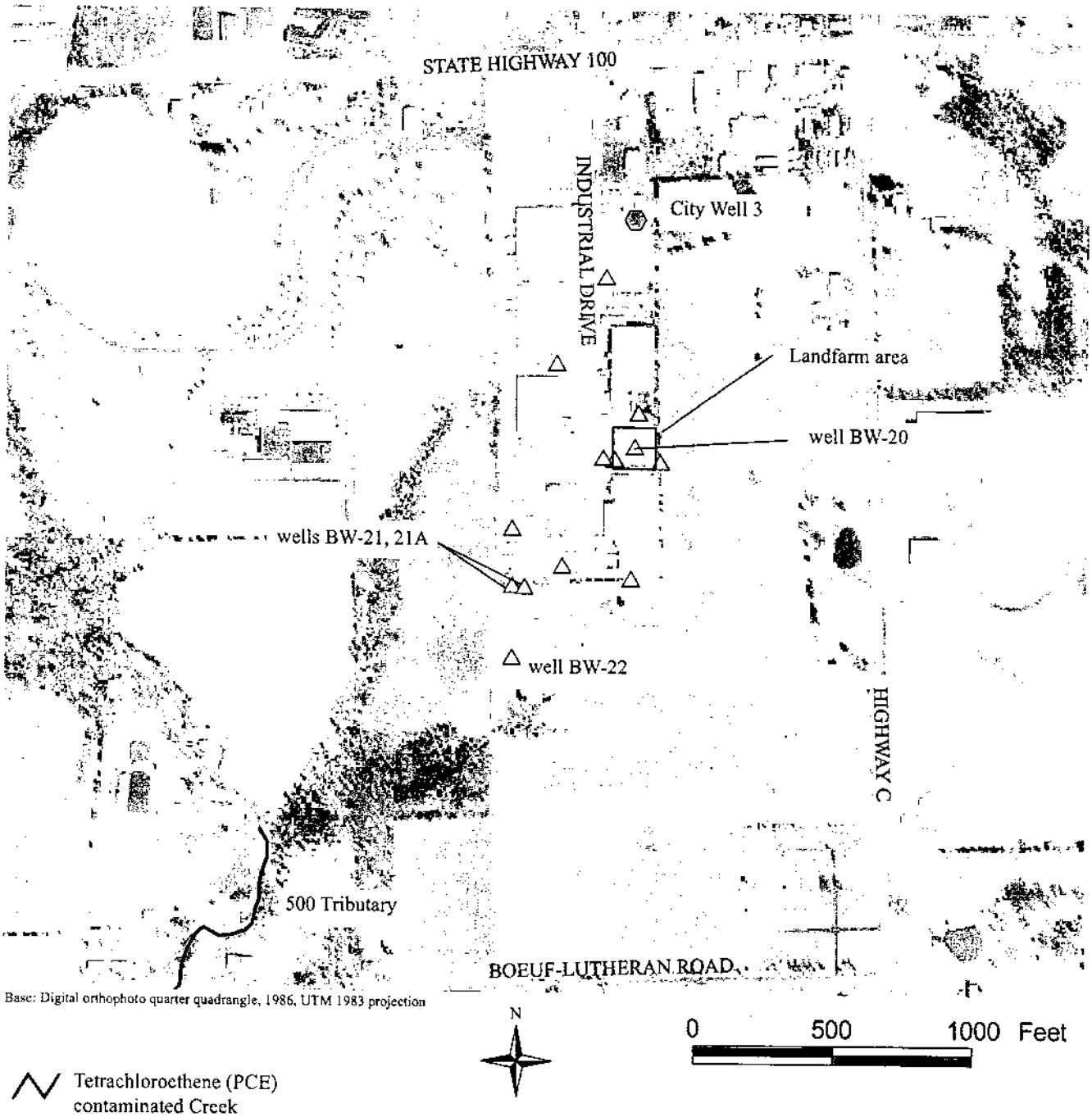
DAVID A. HOEFER
Attorney
U.S. Environmental Protection
Agency, Region VII
901 North 5th Street
Kansas City, Kansas 66101

The undersigned representative of Respondent certifies that he/she is fully authorized to enter into this Order and to bind Respondent to this Order.

FOR KELLWOOD COMPANY

March 11, 2004
Date

Signature: Thomas H. Pelliham
Name (print): Thomas H. Pelliham
Title: Senior Vice President
Address: Kellwood Company
600 Kellwood Parkway
Chesterfield, MO 63017



Attachment 1, Operable Unit 2 and vicinity, Riverfront Superfund Site.

ATTACHMENT 2

STATEMENT OF WORK
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
RIVERFRONT SUPERFUND SITE, OPERABLE UNIT NO. 2
NEW HAVEN, MISSOURI

INTRODUCTION

The purpose of this remedial investigation/feasibility study (RI/FS) is to investigate the nature and extent of contamination at the Riverfront Superfund Site, Operable Unit No. 2 (OU2) and develop and evaluate potential remedial alternatives. (As used herein "Site" shall have the same definition as the "Site" definition which appears in Section V of the Order to which this Statement of Work is attached). The RI and FS are interactive and may be conducted concurrently so that the data collected in the RI may influence the development of remedial alternatives in the FS and the data requirements of the FS may influence the RI sampling activities.

Respondent shall conduct this RI/FS and produce an RI/FS in accordance with this Statement of Work (SOW), EPA's "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (Interim Final)," EPA/540/G-89/004, OSWER Directive 9355.3-01, October 1988 ("RI/FS Guidance"), and any other guidance which EPA uses in conducting an RI/FS (a list of the primary guidances is attached), as well as any additional requirements in the Order. Respondent will furnish all necessary personnel, services, materials, and equipment required, or incidental to, performing the RI/FS in accordance with all applicable regulations and guidance.

At the completion of the RI/FS, EPA is responsible for the selection of a Site remedy and will document this selection in a Record of Decision (ROD). The remedial action (RA) alternative selected by EPA will meet the clean-up standards specified in Section 121 of CERCLA. That is, the selected RA will be protective of human health and the environment, will be in compliance with, or include a waiver of, applicable or relevant and appropriate requirements (ARARs) of other laws, will be cost-effective, will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable, and will address the statutory preference for treatment as a principal element. The final RI/FS Report, as adopted by EPA, and the Baseline Risk Assessment will, with the administrative record, form the basis for the selection of the Site's remedy and will provide the information necessary to support the development of the ROD. As specified in Section 104(a)(1) of CERCLA, EPA will provide oversight of Respondent's activities throughout the RI/FS. Respondent will support EPA's initiation and conduct of activities related to the implementation of oversight activities.

BACKGROUND

The Missouri Department of Natural Resources (MDNR) discovered tetrachloroethene (PCE) contamination in 1986 during routine sampling of the public water supply wells for the city of

New Haven, Missouri. In 1987 and 1988, MDNR conducted a Site investigation in an attempt to identify possible PCE sources. The city of New Haven closed municipal wells #1 and #2 in 1989 and 1993, respectively, because PCE was detected at levels above the Maximum Contaminant Level (MCL) of five micrograms per liter (µg/L). Both wells are in the northern part of the city and open to the Ozark aquifer. PCE has not been detected in municipal wells #3 and #4, which currently supply the city with its drinking water.

The Riverfront Site, which includes this Operable Unit, was listed on the National Priorities List (NPL) on October 19, 2000. The Site has six Operable Units: the Front Street Site (OU1) in downtown New Haven; the Industrial Drive Site (OU2); the old city dump (OU3); the east New Haven area (OU4); the hat factory (OU5); and the South Industrial Drive Removals (OU6). Field sampling activities have proceeded on each of the OUs. OU2 includes the former landfarm area, former Kellwood buildings, parking lots, the nearby area and the sanitary sewer system.

RI TASKS

TASK 1 - SCOPING [Chapter 2 - note: bracketed references are to the RI/FS Guidance]

Scoping is the initial planning process of the RI/FS and is initiated by EPA. During this process, the Site-specific objectives of the RI/FS are determined by EPA. The process is continued, repeated as necessary, and refined throughout the RI/FS process. In addition to developing the Site-specific objectives of the RI/FS, EPA will determine a general management approach for the Site. Consistent with the general management approach, the specific project scope will be planned by Respondent and EPA. Respondent will document the specific project scope in the RI/FS Work Plan. Because the work required to perform a RI/FS is not fully known at the onset and is phased in accordance with a site's complexity and the amount of available information, it may be necessary to modify the RI/FS Work Plan during the RI/FS to satisfy the objectives of the study.

The Site objectives are to characterize the nature and extent of contamination, assess the risks posed by this contamination, and to evaluate potential remedial options. The goal is to develop the data necessary to support the selection of a remedial action for the Site.

While scoping the specific aspects of a project, Respondent will confer with EPA to discuss all project planning decisions and special concerns associated with the Site. The following activities shall be performed by Respondent as a function of the project planning process.

A. Site Background [2.2]

Respondent will supplement previous efforts to gather and analyze the existing Site background information and conduct a Site visit to assist in planning the scope of the RI/FS.

Collect and Analyze Existing Data and Document the Need for Additional Data [2.2.2; 2.2.6; 2.2.7]

Before planning the RI/FS activities, all existing Site data will be thoroughly compiled and reviewed by Respondent. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the Site and past disposal practices. This will also include results from any previous sampling events. Respondent will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information will be utilized in determining additional data needed to characterize the Site, better define potential ARARs, and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA.

Conduct Site Visit

Respondent will conduct a Site visit during the project scoping phase to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Site. During the Site visit Respondent should observe the Site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological, and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Site, better define potential ARARs, and narrow the range of preliminarily identified remedial alternatives.

B. Project Planning [2.2]

Once Respondent has collected and analyzed existing data and conducted a Site visit, the specific project scope will be planned. Project planning activities include those tasks described below as well as the identification of data needs, developing the RI/FS Work Plan, designing a data collection program, and identifying health and safety protocols. Respondent will confer with EPA regarding the following activities and before drafting the scoping deliverables below. These tasks are described in Section C of this task since they result in the development of specific required deliverables.

Refine and Document Preliminary Remedial Action Objectives and Alternatives [2.2.3]

Once existing Site information has been analyzed and an understanding of the potential Site risks has been determined, Respondent will identify preliminary remedial action objectives. Respondent shall then develop broadly defined potential remedial action alternatives and associated technologies. If necessary, Respondent shall refine the preliminary remedial action objectives that have been identified by EPA for each actually or potentially contaminated medium. The revised remedial action objectives will be documented in the RI/FS Work Plan. Respondent will then identify a preliminary range of broadly defined potential remedial action

alternatives and associated technologies. The range of potential alternatives shall encompass: alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that involve containment with little or no treatment; and a no-action alternative.

Document the Need for Treatability Studies [2.2.4]

If remedial actions involving treatment have been identified by Respondent or EPA, Respondent shall conduct treatability studies except where it can demonstrate to EPA's satisfaction that they are not needed. Where treatability studies are needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Site characterization activities (Tasks 3 and 5).

Begin Preliminary Identification of Potential ARARs [2.2.5]

Respondent will conduct a preliminary identification of, and include in the RI/FS Work Plan, potential state and federal ARARs (chemical-specific, location-specific, and action-specific) to assist in the refinement of remedial action objectives and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as site conditions, contaminants, and remedial action alternatives are better defined.

C. Scoping Deliverables [2.3]

At the conclusion of the project planning phase, Respondent will submit to EPA for review and approval a RI/FS Work Plan, a Sampling and Analysis Plan (SAP), and a Health and Safety Plan (HSP). The RI/FS Work Plan and SAP must be reviewed and approved by EPA prior to the initiation of field activities.

RI/FS Work Plan [2.3.1]

Respondent shall prepare an RI/FS Work Plan documenting the decisions and evaluations to be completed during the scoping process. The RI/FS Work Plan should be developed in conjunction with the SAP and the HSP, although each may be submitted to EPA under separate cover. The RI/FS Work Plan shall include a comprehensive description of the work to be performed, including the methodologies to be used, as well as a schedule for completion. The RI/FS Work Plan shall include:

- the rationale for performing the required activities;
- a statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RI/FS;
- a site background summary including the geographic location of the Site, a description of the Site's physiography, hydrology, geology, demographics, ecological, cultural, and natural resource

features;

- a synopsis of the Site history and a description of previous responses that have been conducted at the site by local, state, federal, or private parties;
- a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified and their distribution among the environmental media at the Site; and
- preliminary identification of remedial alternatives and data needs for the evaluation of remedial alternatives.

The RI/FS Work Plan will recognize the need for the preparation of the Baseline Risk Assessment. The RI/FS Work Plan will reflect coordination with any applicable treatability study requirements (Tasks 1 and 4). It will include a process for and manner of identifying federal and state ARARs (chemical-specific, location-specific, and action-specific).

Finally, the major part of the RI/FS Work Plan is a detailed description of the tasks to be performed, information needed for each task in support of the Baseline Risk Assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes:

- the deliverables set forth in the remainder of this SOW;
- a schedule for each of the required activities which is consistent with the RI/FS guidance;
- a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management); and
- monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of the RI/FS.

Respondent will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the RI/FS Work Plan. Because of the unknown nature of the site and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. Respondent will submit to EPA for review and approval a technical memorandum documenting the need for additional data and identifying the DQOs whenever such requirements are identified. In any event, Respondent is responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

Sampling and Analysis Plan [2.3.2]

Respondent will prepare a SAP to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The SAP provides a mechanism for planning field activities and consists of a Field

Sampling Plan (FSP) and a Quality Assurance Project Plan (QAPP). The FSP will define in detail the sampling and data-gathering methods that will be used. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The QAPP will be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001) and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998). Respondent shall perform the QA activities necessary to monitor its subcontractor's performance of these activities if a subcontractor is used.

To address the PCE contamination specifically, water samples shall be analyzed for PCE and other volatile organic compounds (VOCs) using EPA Method 8260 or 524.2 (for drinking water) with a maximum detection level of 0.2 µg/L. Solid-phase samples should be analyzed for PCE and other VOCs using Method 8260 or a comparable method. Because the subsurface geochemical environment greatly influences the persistence of PCE and its decomposition products, a suite of inorganic chemical constituents and redox couples (sulfate-sulfide, nitrate-nitrite, iron II, Oxygen Reducing Potential (ORP) and alkalinity) shall be analyzed at least once at a representative number of groundwater sample locations. A selected subset of environmental samples shall be analyzed for other constituents to verify that migration of other hazardous constituents or compounds consistent with manufacturing and industrial processes conducted at the site has not or is not occurring. EPA Methods 8270, 8081, 8082, RCRA metals, plus mercury and zinc need to be included in this selected subset. If after a representative number of samples has been taken, and the constituents associated with Methods 8270, 8081, 8082, RCRA metals, plus mercury and zinc are not detected or are detected at acceptable levels, they will not be included in subsequent sampling rounds .

The DQOs will, at a minimum, reflect use of analytical methods for identifying and remediating contamination. The QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting, and personnel qualifications. Field personnel should be available for EPA QA/QC training and orientation where applicable. Respondent will demonstrate, in advance, to EPA's satisfaction, that each laboratory it uses is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the site by EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this site for the purposes proposed and QA/QC procedures approved by EPA must be used. Respondent shall only use laboratories which have a documented Quality Assurance Program which complies with ANSI/ASQC E-4 1994, "Specification and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995) and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01-002, March 2001), or equivalent documentation as determined by EPA. If the laboratory is not in the CLP, the laboratory's QA program must be

submitted for EPA review and approval. EPA may require that Respondent submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment, and material specifications. Respondent's contract with the laboratory shall allow EPA to audit the laboratory, including access to laboratory personnel, equipment, and records for sample collection, transportation, and analysis.

Analytical Support and Data Validation [2.3.2.4]

Respondent will schedule, coordinate, track, and provide oversight of the analyses as well as provide validation of the analytical data produced. Activities required under this task include:

- Respondent, or its representative, shall collect, prepare, and ship environmental samples in accordance with the FSP. The emphasis on the samples will be those necessary to conduct the Baseline Risk Assessment, and any other analyses deemed necessary by EPA to complete the RI/FS;
- Respondent shall perform the quality assurance activities necessary to monitor its subcontractor's performance of these activities;
- Respondent, or its representative, shall perform all necessary sample management activities including chain-of-custody and information management; and
- Respondent shall perform data validation of the sample results including a determination of whether the data are defensible, produced in accordance with the QAPP and FSP, and useable for their intended purposes. A report outlining the data validation process and conclusions of the data usability shall be provided to EPA in accordance with the schedule set forth in the Order. Respondent may seek a reduction in the amount of data validation after a representative number of sampling events have been conducted and EPA is satisfied with the data quality. All final sampling events which define the extent of contamination shall be 100% validated.

Health and Safety Plan [2.3.3]

A Health and Safety Plan (HSP) will be prepared in conformance with Respondent's health and safety program, and in compliance with Occupational Safety and Health Administration (OSHA) regulations and protocols and consistent with 29 C.F.R. § 1910.120(1)(1) and (1) (2). The HSP will include the 11 elements described in Appendix B to the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. It should be noted that EPA does not "approve" the HSP, but rather EPA reviews it to ensure that all necessary elements are included, and that it provides for the protection of human health and the environment.

TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. Respondent may assist by providing information regarding the Site's history and participating in public meetings. The Baseline Risk Assessment Memoranda prepared by Respondent will summarize the toxicity assessment and components of the Baseline Risk Assessment. EPA will make these memoranda available to all interested parties for comment and place them in the Administrative Record. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) The extent of Respondent's involvement in community relations activities is left to the discretion of EPA and Respondent's community relations responsibilities, if any, are specified in the community relations plan. All Respondent-conducted community relations activities will be subject to oversight by EPA.

TASK 3 - SITE CHARACTERIZATION [Chapter 3]

As part of the RI, Respondent will perform the activities described in this task, including the preparation of a Site characterization summary and the RI Report. The overall objective of the Site characterization is to describe areas of the Site that may pose a threat to human health or the environment.

Respondent will define:

- the Site's physiography, geology, and hydrology;
- the surface and subsurface pathways of migration;
- the sources of contamination and their nature, extent, and volume, including their physical and chemical constituents as well as their concentrations at incremental locations in the affected media; and
- the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site.

Respondent shall use this information to determine and project contaminant fate and transport.

During this phase of the RI/FS, the RI/FS Work Plan, SAP, and HSP are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the RI/FS. Respondent will notify EPA in accordance with the schedule set forth in the Order in advance of the field work regarding the planned dates for field activities, including field lay-out of the sampling grid, excavation, installation of wells, initiation of sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. Respondent will demonstrate that the laboratory and type of laboratory analyses that will be utilized during Site characterization meets the specific QA/QC requirements and the DQOs of the Site investigation as specified in the SAP. In view of the unknown Site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for

Respondent to revise the work specified in the initial RI/FS Work Plan. In addition to the deliverables below, Respondent will provide a monthly progress report and participate in meetings at major points in the RI/FS.

Field Investigation [3.2]

The field investigation includes the gathering of data to define Site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the site. These activities will be performed by Respondent in accordance with the RI/FS Work Plan and SAP. This characterization is to include soil, soil gas, groundwater, surface water, utility corridors, and biota. Activities should include, but not be limited to, the following items.

Implement and Document Field Support Activities [3.2.1]

Respondent will initiate field support activities following approval of the RI/FS Work Plan and SAP. Respondent will perform all activities related to mobilization/demobilization for field events. Field support activities may include obtaining access to the Site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. Respondent will notify EPA in accordance with the schedule set forth in the Order so that EPA may adequately schedule oversight tasks. Respondent will also notify EPA in writing upon completion of field activities.

Investigate and Define Site Physical and Biological Characteristics [3.2.2]

Respondent will collect data on the physical and biological characteristics of the Site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the RI/FS Work Plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts. The information will be used to define potential transport pathways and human and ecological receptor populations. In defining the Site's physical characteristics, Respondent will also obtain sufficient engineering data (such as aquifer yield and drawdown) for the projection of contaminant fate and transport, and the development and screening of remedial action alternatives, including information to assess treatment technologies.

In order to accurately define the Site's physical and biological characteristics, Respondent will perform a Site reconnaissance, which includes, but is not limited to, the following:

- sampling of existing monitoring wells at the Site, city well No. 3, and domestic wells at the Site and in the vicinity of the Site to the extent that Respondent can obtain access to such wells in accordance with the Order;
- surface water sampling;
- surface geophysical surveys to determine the bedrock surface and

significant fracture patterns or faults in the bedrock;
- soil sampling;
- sediment sampling; and
- sanitary and storm sewer sampling at selected locations.

The results of the Site reconnaissance shall be included in the RI Report.

As part of the investigation, Respondent will perform a hydrogeological assessment that will include test borings and monitoring well installation and development. The goal of this assessment is to determine the horizontal and vertical extent and magnitude of PCE contamination and determine the geologic and hydrologic factors that affect the distribution and migration of PCE in the subsurface at the Site and the vicinity. An additional objective shall be to determine the potential effect of pumpage from city well #3 on contamination at the site. Consistent with these objectives Respondent will install and develop monitoring wells at the following locations as well as other locations necessary to determine the nature and extent of PCE contamination:

- nests of monitoring wells (multiple intervals) in the saturated overburden and bedrock aquifer between the landfarm area and Boeuf-Lutheran Road;
- a well nest between city well #3 and the landfarm area;
- additional monitoring wells as needed to characterize the nature and extent of contamination within the Site and the vicinity; and
- additional wells or other data to characterize the direction and relation between PCE contamination and shallow and deep groundwater flow, and between known interval(s) of PCE contamination and the city well #3.

Additional support and data collection activities associated with the installation of monitoring wells include:

- monitoring of PCE concentrations within the well bore at intervals not to exceed 10 feet during well drilling activities and at the beginning of each day of drilling activities;
- determining groundwater level measurements to the nearest 0.01 foot during the drilling of monitoring wells and at the beginning of each day during drilling activities from a temporary or permanent measuring point of known elevation;
- completing driller/geologists logs and using borehole geophysical methods in monitoring wells, and coring selected bedrock monitoring wells installed at the Site and the vicinity;
- surveying all monitoring well locations including the elevation of top of casing or suitable measuring point. Horizontal control should be within 0.5 foot and vertical control should be within 0.05

foot. Surveys should be tied to existing monitoring wells and nearby controls;

- Retain all cuttings until the completion of the RI/FS, and upon EPA's request, submit a selected number of drill cuttings for geologic logging to MDNR or a qualified entity; and
- conducting hydraulic testing to evaluate the interconnectedness of the perched, shallow, and deep aquifers, in addition to hydraulic parameter characterizations of each water bearing unit.

The results of the hydrogeological assessment shall be included in the RI Report.

Define Sources of Contamination [3.2.3]

Respondent will locate each source of contamination. For each location the area, extent, and depth of contamination will be determined by sampling at selected incremental depths at selected locations on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination. Respondent shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QAPP and DQOs. Respondent will perform necessary borings and drilling to adequately characterize the nature and extent of this contamination. Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long-term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

Continuous sampling of unconsolidated materials will be conducted. Sample locations include, but are not limited to, beneath and adjacent to Industrial Drive, the building immediately south of the land farm area, the land farm area, and the current gravel parking areas west of Industrial Drive. Characterization will also include sampling of the consolidated unsaturated zone to address the presence and extent of DNAPL. Characterization will also include the perched water zones.

Respondent will perform additional environmental sampling, including:

- field screening using direct reading instruments of all solid phase or sludge samples collected;
- sampling of all new and existing monitoring wells, public-supply, industrial, and domestic wells at the Site and the vicinity on a quarterly basis for VOCs for at least one year to the extent that Respondent can obtain access to such domestic and existing monitoring wells in accordance with the Order. Based on these results, additional sampling may be required. Sampling needs to include measurements of water level, purge rate, and total purge volume, specific conductance, pH, temperature and dissolved

oxygen. Unless prior approval is obtained from EPA, bailing is not an acceptable sampling method at the Site for groundwater analyses of volatile organic compounds; and

- surface water and sediment sampling for VOCs at each tributary to the west, southwest, and east of the Site. Surface water sampling needs to include stream flow measurement and the above mentioned applicable field parameters.

Respondent shall conduct sampling of the sanitary sewers at the Site and downgradient of the Site in manholes, lift stations, pump houses, and along sewer lines and other locations to characterize the nature and extent of contamination identified within, below, and along the sewer lines as set forth in the RI/FS Work Plan. The sewer lines shall be inspected (by camera or other means) to identify cracks and leaks. Subsurface soil samples will be collected adjacent to and below cracks and leaks as well as at regular intervals along the sewer lines as set forth in the RI/FS Work Plan. This activity includes determining the location of, and sampling of, any abandoned sewer lines emanating from the former Kellwood facility.

Respondent shall dispose of investigation derived waste and other waste generated on Site in accordance with local, state, and federal regulations.

Describe the Nature and Extent of Contamination [3.2.4]

Respondent will gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, Respondent will utilize the information on Site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. Respondent will then implement an iterative monitoring program and any study program identified in the RI/FS Work Plan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the site can be determined. In addition, Respondent will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of contamination are known to the level of contamination established in the QAPP and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the Site. Respondent will use this information to help determine aspects of the appropriate remedial action alternatives to be evaluated.

Data Analysis [3.4]

This task includes work efforts related to the compilation of RI analytical data and field data. Activities required under this task include:

- Respondent shall perform data usability evaluation(s) and field QA/QC on the data generated for sample analysis; and
- Respondent shall perform data reduction and tabulation of:

- soil boring and monitoring well logs;
- field sampling data;
- hydrologic, geologic, and geophysical data; and
- analytical results and geochemical data, and relations between these and geohydrologic data and field sampling data.

Respondent shall provide its evaluation of each data set to EPA and shall perform environmental fate and transport modeling and evaluation. The results of the fate and transport modeling shall be reported to EPA as a technical memorandum.

Evaluate Site Characteristics [3.4.1]

Respondent shall analyze and evaluate the data to describe: (1) Site physical and biological characteristics; (2) contaminant source characteristics; (3) nature and extent of contamination; and (4) contaminant fate and transport. Results of the Site physical characteristics, source characteristics, and extent of contamination analyses are used in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is deemed appropriate by EPA, models shall be identified to EPA in a technical memorandum for review and approval prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data shall be presented in a format (i.e., computer disk or equivalent) to facilitate EPA's review of the Baseline Risk Assessment. Respondent shall agree to discuss and then collect any data gaps required to complete the Baseline Risk Assessment. (See "Guidance for Data Usability in Risk Assessment" - OSWER Directive # 9285.7-05 - October 1990.) The evaluation will include any information relevant to Site characteristics necessary for the evaluation of the need for remedial action in the Baseline Risk Assessment and for the development and evaluation of remedial alternatives. Analysis of data collected for Site characterization will meet the DQOs developed in the QAPP and stated in the SAP (or revised during the RI).

Baseline Risk Assessment [3.4.2]

Respondent shall prepare a conceptual exposure pathway analysis in accordance with Regional guidelines and OSWER Directives 9285.7-01B, 12/89, 9285.7-01, 4/90 (Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Part A) and 9285.7-01A (Risk Assessment Guidance for Superfund, Volume II: Environmental Evaluation Manual).

A Baseline Risk Assessment and the necessary risk assessment documents will be prepared by Respondent. All data shall be of acceptable quantity and quality so that the Baseline Risk Assessment may be prepared in accordance with the guidance documents listed herein. The objective of the Baseline Risk Assessment is to characterize and quantify, where appropriate, the current and potential human health and environmental risks that would prevail if no further

remedial action is taken. The Baseline Risk Assessment will be conducted in accordance with the following guidance, procedures, assumptions, methods and formats contained in:

- Human Health Evaluation Manual Supplemental Guidance: "Standard Default Exposure Factors" OSWER Directive 9285.6-03 (EPA, March 25, 1991);
- EPA's Region Supplemental Risk Assessment Guidance for the Superfund Program Part 1: Public Health Risk Assessment and Part 2: Ecological Risk Assessment (EPA 901/5/89-001, June 1989);
- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A) Interim Final (EPA 540/1/-89, December 1989);
- Risk Assessment Guidance for Superfund, Volume II: Environmental Evaluation (EPA 540/1-89/001, March 1989);
- Air/Superfund National Technical Guidance Study Series Volumes I, II, III, and IV (EPA 450/1-89-001, 002, 003, 004, July 1989); and
- Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference Document (EPA 600/3-89/013, March 1989).

The Baseline Risk Assessment will have two components; the Human Health Risk Assessment, and the Ecological Risk Assessment. The Human Health Risk Assessment will address the following:

- hazard identification;
- dose-response assessment;
- exposure assessment;
- risk characterization; and
- limitations/uncertainties.

The Ecological Risk Assessment has been conducted and addresses the following:

- definition of objectives;
- characterization of site and potential receptors;
- selection of chemicals, species, and end points for risk evaluation;
- exposure assessment;
- toxicity assessment;
- risk characterization; and
- limitations/uncertainties.

EPA may determine that the Ecological Risk Assessment may need to be augmented by Respondent depending on its evaluation of Site characteristics.

Data Management Procedures [3.5]

Respondent will consistently document the quality and validity of field and laboratory data compiled during the RI.

Document Field Activities [3.5.1]

Respondent shall collect, prepare, and ship environmental samples in accordance with the field sampling plan. Information gathered during Site characterization will be consistently documented and adequately recorded by Respondent in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the RI/FS Work Plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain Sample Management and Tracking [3.5.2; 3.5.3]

Respondent shall perform all necessary sample management activities including chain-of-custody, information management and data validation. Respondent will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the evaluation of remedial alternatives. Analytical results developed under the RI/FS Work Plan will not be included in any Site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. The data validation of the sample results needs to include a determination of whether the data are defensible, produced in accordance with the QAPP and field sampling plan, and useable for their intended purposes. In addition, Respondent will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

Site Characterization Deliverables [3.7]

Respondent will prepare the Preliminary Site Characterization Summary and the Remedial Investigation Report.

Preliminary Site Characterization Summary [3.7.2]

Respondent shall submit to EPA for review and approval a Preliminary Site Characterization Summary. The Preliminary Site Characterization Summary will review the investigative activities that have taken place, and describe and display Site data documenting the location and characteristics of surface and subsurface features and contamination at the Site including the affected media, types, location types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant

migration through each of the affected media will be documented. The Preliminary Site Characterization Summary will provide a preliminary reference for developing the Baseline Risk Assessment and evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

Remedial Investigation Report (RI Report) [3.7.3]

Respondent will prepare and submit a draft RI Report to EPA for review and approval. The RI Report shall summarize results of field activities to characterize the Site, sources of contamination, and the fate and transport of contaminants. Respondent will refer to the RI/FS Guidance for an outline of report format and contents. Following comment by EPA, Respondent will prepare a final RI Report which satisfactorily addresses EPA comments.

The draft and final RI Report shall be submitted to EPA for review and approval. The RI Report shall include a discussion of the following topics:

- Site Background;
- Investigation
  - Field Investigation and technical approach
  - Chemical analyses and analytical methods
  - Field methodologies (biological, surface water, sediment, soil boring, soil sampling)
  - Monitoring well installation, groundwater sampling, hydrogeological assessment, etc.);
- Site Characteristics
  - Geology
  - Hydrogeology
  - Meteorology
  - Demographics and land use
  - Ecological assessment;
- Nature and Extent of Contamination
  - Contaminant sources
  - Contaminant distribution and trends;
- Fate and Transport
  - Contaminant characteristics
  - Transport processes
  - Contaminant migration trends
  - Contaminant fate;
- Risk Assessments
- Summary and Conclusions.

TASK 4 - TREATABILITY STUDIES (Chapter 5)

Treatability testing may be performed by Respondent to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and results and operating conditions may be used in the detailed design of the selected remedial technology. If required, the following activities will be performed by Respondent.

Determination of Candidate Technologies and of the Need for Testing [5.2; 5.4]

Respondent will identify in a technical memorandum, subject to EPA review and approval, candidate technologies for a treatability studies program during project planning (Task 1). The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 6 a.). The specific data requirements for the testing program will be determined and refined during Site characterization and the development and screening of remedial alternatives (Tasks 2 and 6, respectively).

Conduct Literature Survey and Determine the Need for Treatability Testing [5.2]

Respondent will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated, or cannot be adequately evaluated for this Site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required and unless Respondent can demonstrate to EPA's satisfaction that they are not needed, Respondent will submit to EPA for review and approval a statement of work outlining the steps and data necessary to evaluate and initiate the treatability testing program.

Evaluate Treatability Studies [5.4]

Once a decision has been made to perform treatability studies, Respondent and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as perform testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible or minimize potential delays of the FS. To assure that a treatability testing program is completed on time and with accurate results, Respondent will either submit a separate treatability testing work plan or an amendment to the RI/FS Work Plan for EPA review and approval.

Treatability Testing and Deliverables [5.5; 5.6; 5.8]

The deliverables that are required where treatability testing is conducted include a work plan, a sampling and analysis plan, a health and safety plan, and an evaluation report.

Treatability Testing Work Plan [5.5]

Respondent will prepare a treatability testing work plan or amendment to the RI/FS Work Plan for EPA review and approval describing the site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot-scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and startup, pilot plant O&M procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed HSP. If testing is to be performed off site, permitting requirements will be addressed.

Treatability Study Sampling and Analysis Plan [5.5]

If the original QAPP or field sampling plan is not adequate for defining the activities to be performed during the treatability test, a separate treatability study SAP or amendment to the original SAP will be prepared by Respondent for EPA review and approval. Task 1, Item c. of this SOW provides additional information on the requirements of a SAP.

Treatability Study Health and Safety Plan [5.5]

If the original HSP is not adequate for defining the defining the activities to be performed during the treatment tests, a separate or amended HSP will be developed by Respondent. Task 1, Item c. of this SOW provides additional information on the requirements of the HSP. EPA does not "approve" the treatability study HSP.

Treatability Study Evaluation Report [5.6]

Following completion of treatability testing, Respondent will analyze and interpret the testing results in a technical report to EPA. Depending on the sequences of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology' effectiveness, implementability, cost, and actual results as compared with predicted results. The report will also evaluate full-scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 5 - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES (Chapter 4)

These tasks include work efforts to develop an appropriate range of remedial alternatives to be evaluated. This range of alternatives, including innovative treatment technologies, are to be consistent with the regulations in the N.C.P. and the RI/FS Guidance and other OSWER Directives including 9355.4-03, October 18, 1989, and 9283.1-06 May 27, 1992, "Considerations in Ground Water Remediation at Superfund Sites". The range of alternatives should include as appropriate: options in which treatment is used to reduce the toxicity, mobility, or volume of

wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed as a function of the development and screening of remedial alternatives.

Development and Screening of Remedial Alternatives [4.2]

Respondent will develop and evaluate a range of appropriate waste management options that at a minimum ensure protection of human health and the environment, concurrent with the RI site characterization task.

Refine and Document Remedial Action Objectives [4.2.1]

Based on the Baseline Risk Assessment, Respondent will review and if necessary modify the Site-specific remedial action objectives, and develop the preliminary remediation goals (PRGs). The revised PRGs will be documented in a technical memorandum that will be submitted to EPA for review and approval. These modified PRGs will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

Develop General Response Action [4.2.2]

Respondent will develop general response actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

Identify Areas or Volumes of Media [4.2.3]

Respondent will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will also be taken into account.

Identify, Screen, and Document Remedial Technologies [4.2.4; 4.2.5]

Respondent will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. General response actions will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each technology type. The technology types and process options will be summarized in the FS Report. The reasons for

eliminating alternatives must be specified.

Assemble and Document Alternatives [4.2.6]

Respondent will assemble selected representative technologies into alternatives for each affected medium. Together, all of the alternatives will represent a range of treatment and containment combinations that will address the Site. A summary of the assembled alternatives and their related action-specific ARARS will be prepared by Respondent for inclusion in the FS Report. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Refine Alternatives

Respondent will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the Baseline Risk Assessment. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

Conduct and Document Screening Evaluation of Each Alternative [4.3]

Respondent may perform a final screening process based on short- and long-term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable.

Alternatives Development and Screening Deliverables [4.5]

Respondent will submit to EPA for review and approval a technical memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. These will be modified by Respondent if required by EPA's comments to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process. The remedial alternatives will be developed in accordance with Section 300.430(e) of the NCP (1990).

TASK 6 - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES (Chapter 6)

The detailed analysis will be conducted by Respondent to provide EPA with the information needed to allow for the selection of a site remedy. This analysis is the final task to be performed by respondent during the FS.

Detailed Analysis of Alternatives [6.2]

Respondent will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

Apply Nine Criteria and Document Analysis [6.2.1-6.2.4]

Respondent will apply the nine evaluation criteria to the assembled remedial alternatives to ensure that: the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARS; will be cost-effective; will utilized permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: Criteria 8 and 9 are considered after the RI/FS report has been released to the general public.) For each alternative Respondent should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated which each alternative; and (2) a discussion of the individual criterion assessment. If Respondent does not have direct input on Criteria 8 - state (or support agency) acceptance and 9 - community acceptance, these will be addressed by EPA.

Compare Alternatives Against Each Other and Document the Comparison of Alternatives [6.2.5; 6.2.6]

Respondent will perform a comparative analysis among the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. Respondent will prepare a technical memorandum summarizing the results of the comparative analysis.

Detailed Analysis Deliverables [6.5]

In addition to the technical memorandum summarizing the results of the comparative analysis, Respondent will submit an FS Report to EPA for review and approval. Once EPA's comments have been addressed by Respondent to EPA's satisfaction, the FS Report may be

bound with the RI Report.

Feasibility Study Report [6.5]

This task includes the preparation of findings once remedial alternatives have been screened and evaluated. The task includes preparation of all draft and final reports to be submitted to EPA for review and approval. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. The draft and final RI/FS Report shall be submitted to EPA for review and approval. Respondent will refer to the RI/FS guidance for an outline of the report format and the required report content. The FS report shall include the following sections:

- Introduction and Site Background;
- Feasibility Study Objectives;
- Remedial Objectives;
- General Response Actions;
- Identification and Screening of Remedial Technologies;
- Remedial Alternatives Description;
- Detailed Analysis of Remedial Alternatives (individual and comparative); and
- Summary and Conclusion.

Respondent will prepare a final FS Report which satisfactorily addresses EPA's comments.

Post RI/FS Support [6.3]

This task includes efforts to support EPA's ROD. The final recommendation contained in the ROD shall represent the opinion and recommendation of EPA. Activities required under this task include:

- Respondent shall attend public meetings, briefings, public hearings, and technical meetings with EPA as needed.

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process.

The National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, " U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies, Volume 1" U.S. EPA, Office of Waste Programs Enforcement, July 1, 1991, OSWER Directive No. 9835.1(c).

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA,. Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"Guidance for the Data Quality Objectives Process (QA-G-4)," (EPA/600/R-96/055, August 2000).

"Guidance for the Data Quality Objectives Process for Hazardous Waste Sites (QA/G-4HW)," (EPA/600/R-00/007, January 2000).

"EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001).

"EPA Requirements for Quality Assurance Project Plans (QA/R-5)," (EPA/240/B-01/003, March 2001).

"Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA 600/R-98/018, February 1998).

"Users Guide to the EPA Contract Laboratory," U.S. EPA, Sample Management Office, January 1991, OSWER Directive No. 9240.0-01D.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S." U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.-02.

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A), EPA/540/1-89/002.

"Ecological Risk Assessment Guidance for Superfund: Process for Designing & Conducting Ecological Risk Assessments," U.S, EPA, OSWER Directive No. 9285.7-25, February 1997.

"Guidance for Data Usability in Risk Assessment," October 1990, EPA/540/G-90/008

"Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No.9835.15.

"Supplemental Guidance on Performing Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSs) Conducted by Potentially Responsible Parties (PRPs)," July 2, 1991, OSWER Directive No. 9835.15(a).

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Health and Safety Requirements of Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, January 1992, OSWER Directive No. 9230.0-3C.

"Community Relations During Enforcement Activities And Development of the Administrative Record," U.S. EPA, Office of Waste Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1a.